TOWN OF HARPSWELL
FISHING INDUSTRY PROFILE

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Prepared For:

TOWN OF HARPSWELL, MAINE
Community Development Committee

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HARPSWELL FISHING INDUSTRY PROFILE - EXECUTIVE SUMMARY

As of 1998, there were an estimated 522 different individuals licensed for commercial marine resource harvesting who either reside in Harpswell or use a Harpswell port as their primary anchorage. The number of commercial fishing boats (all sizes) operating locally includes at least 419 different boats used in association with harvester licenses. A count of resident-owned power boats with Maine registrations designated as "commercial fishing" (379), plus the number of documented vessels associated with Harpswell ports (135), indicates over 500 boats of all sizes are involved in commercial fishing locally. The core of the local commercial fleet, based on a recent inventory of port facilities totals 236 fishing boats, of which 201 are lobster boats. Comparative data relating to resident employment, and counts of commercial boats, indicate that Harpswell has one of the highest concentrations of commercial fishing on the Maine coast. Within Cumberland County, Harpswell and Portland are the principal centers of the commercial fishing economy.

The number of jobs held by Harpswell residents in commercial fishing has probably not changed significantly since 1990, when the agriculture, forestry and fishing industries employed about 10% of the Town's working residents. With most employment growth concentrated in other industrial sectors, and with an increasing number of residents working outside of town, the proportion of Harpswell residents who are linked to the fishing industry is probably declining. However, commercial fishing is responsible for a high proportion of Harpswell's base of economic activity and employment. Commercial fishing based in Harpswell provides full or part time employment for between 400 to 500 persons locally. The core of the industry is comprised of an estimated 200-250 fishermen who are principally dependent on an income earned from fishing, plus the crew that they employ. In addition, there are probably 60-80 full or part time jobs in Harpswell within fishing-related businesses. When self-employment is considered as part of the local employment base of Harpswell, fishing related occupations probably represent 50% to 60% of local jobs.

The total landed value of the catch attributed to Harpswell-based commercial fishing, based on assumed shares of Cumberland County landed value totals for 1997 and 1998 is estimated at between $12 million and $14 million annually. The value of the catch that is landed within Harpswell is estimated at approximately $10 million. A large portion of total gross receipts of fishermen (at least half) is estimated to be spent in direct business expenses which benefits other sectors in wholesale, retail, services and construction sales and related employment. The direct and indirect expenditure impact of commercial fishing based in Harpswell is sufficient to support additional secondary employment of between 238-280 jobs.

Interviews and focus groups evidenced a common concern about increasing shorefront real estate values and a rapid growth in recreational boating as forces that could gradually erode commercial fishing access to the working harbors. Growth in recreational boating represents an increasing challenge for harbor and mooring management and related enforcement. A strong local residential market, rising residential values, and related property taxes are seen as forces that limit the ability of fishermen to live in Harpswell. A related concern is that all these forces could result in property development and redevelopment that eventually alters the basic character and heritage of the community, which has thus far centered on the commercial fishing economy.

HARPSWELL FISHING INDUSTRY PROFILE

I. PURPOSE OF STUDY

As part of its Community Development Committee's assessment of economic development needs, the town of Harpswell commissioned this study to estimate the relative economic importance of the commercial fishing industry within the Town. This scope of this study centered on three central questions:

- How many people are involved in the commercial fishing locally and how is this changing?
- What are the economic effects of the local fishing industry on the Town and the region?
- Are there issues that the Town needs to address in order to continue to support a viable commercial fishing presence in Harpswell?

The first two questions proved challenging for a number of reasons. First, very little economic data is reported at the local (municipal) level. Second, the Cundys Harbor area of Harpswell is served by the Brunswick Post Office and its zip code, making it difficult to assemble data that is primarily based on mailing address rather than by legal residence. Third, most of the local commercial fishing industry is based on self-employed individuals and very small businesses which are not reported within the typical data sources used in economic analysis of industrial sectors. Therefore a basic goal of the study was the assembly of local information to create independent estimates of employment and earnings for commercial fishing in Harpswell. This requires a number of assumptions based on a variety of sources including marine resource harvester licenses, counts of commercial fishing boats, the estimated value of landings, and other materials.

II. LOCAL LICENSES AND JOBS IN THE FISHING INDUSTRY

A. State Marine Resource Harvester Licenses

The data search for local licenses encompassed all Maine Department of Marine Resources (DMR) harvester licensees having a Harpswell mailing address, including Harpswell, Bailey Island, Cundys Harbor, Orrs Island; OR a license listing one of those locations as a "primary anchorage". Possible missing cases could include those living in Cundys Harbor and using Brunswick (04011) as a mailing address, but who did not designate a Harpswell location as their primary anchorage. Most Cundys Harbor licenses should have been picked up by the anchorage codes. The 1998 DMR data base was used for the analysis, as the 1999 file did not represent a complete year at the time of this study. The file includes some Harpswell residents who designated out-of-town ports including Portland as their primary anchorage.

The DMR files represent individual license records. Many of those involved in fishing have multiple licenses, and licenses such as Commercial Fishing w/Crew, and Lobster/Crab Class II (operator + 1 helper) and III (operator + 2 helpers) represent more than one person covered by the license. It is also apparent that many commercial licenses are held by persons not currently engaged in fishing. Some commercial permits are held by those who fish only occasionally, while others are held by licensees who do not fish, but want to preserve "grandfathered" rights to retain future access to commercial fisheries. Local data for Harpswell licenses by type was available for years beginning in 1993. Statewide data was available for the 1982-1998 period. The changes in numbers of licenses for Harpswell-based fishing are shown for 1993-1998 in Table 1 on the following page.

Figures 1 and 2 illustrate statewide changes in the number of licenses issued in Maine from 1982-1998 for the major licensing groups. Statewide, total licenses for lobster stand at approximately 7,000, having declined from about 9,000 in 1982. In Harpswell, the data for the last five years indicates that the total number of Class I, II and III lobster/crab licenses in Harpswell increased from 343 in 1993 to 353 in 1998. While the total number of these licenses has been stable, an increasing proportion of Harpswell licenses are now held under Class II and III, which enables a larger total crew complement to be covered by the same number of licenses.

Commercial fishing licenses (sole operators and operator plus crew) in Maine were not significantly higher in 1998 than in 1990. In Harpswell, the total number of licenses grew from 99 in 1993 to 117 in 1998. Nearly all of this increase occurred among sole operators, while the licenses for larger boats with crew increased by only one during the period. The inventory of active groundfishing, shrimp and other non-lobster boats in Harpswell indicates that the number of active commercial fishing vessels is much smaller than the license data would indicate.

Reportedly, the sea urchin fishery was an important one to Harpswell during its rapid buildup in the early 1990s. Total licenses in Maine in 1998 represent about a third of the peak number of licenses achieved in 1994 (see Figure 2). Local fishermen report that the resource was heavily taxed by dragging before regulations were in place, leading to a severe decline in the stock. Urchins still represent the second highest value species of the non-cultured landings in Maine, but are less significant today among Cumberland County landings. Access to this fishery is now limited by lottery.

Commercial shellfishing licenses statewide reached a peak of approximately 4,000 in 1985, but now stand at about half that number. While the number declined statewide, Harpswell's commercial shellfishing permits have increased substantially since 1990 as resources have improved under local conservation management.

Figure 3 illustrates the types of various harvester licenses associated with fishing in Harpswell as a percentage of the Maine total.

TABLE 1

State/Local Licenses for Residence/Anchorage in Harpswell
Number of Licenses Issued by DMR By Type

HARPSWELL - LICENSE HOLDERS WITH LOCAL ADDRESS AND/OR

License Type	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**Change 1993-98**
Commercial Fishing-Crew	68	72	78	86	70	69	1
Commercial Fishing-Sole Operator	31	51	45	51	44	48	17
Commercial Shellfish *	53	67	70	74	84	85	32
Elver-Dip Net				5	3	9	9
Elver-1 Fyke						1	1
Elver-2 Fykes							0
Elver-Dip & 1 Fyke				3	2	10	10
Elver-Dip & 2 Fykes				7	2	1	1
Elver-Dip & 3 Fykes						2	2
Dip Net & 4 Fykes				2		1	1
Elver-Dip & 5 Fykes				1			0
Eel				5			0
Eel Pot/Hoop Net					1		0
Lobster/Crab Class I	226	222	236	215	180	177	-49
Lobster/Crab Class II	98	91	105	112	129	143	45
Lobster/Crab Class III	19	20	17	30	27	33	14
Lobster/Crab Age 70+	19	21	19	19	17	18	-1
Lobster/Crab Student				32	38	44	44
Lobster/Crab Age <18	52	40	50	22	21	16	-36
Lobster/Crab Non-Commercial				3	14	21	21
Mussell Boat	1			2		2	1
Mussell Hand					2	2	2
Marine Worm Digger			1	2	5	3	3
Non-Resident Commercial Fishing	1			1			-1
Mahogany Quahog			1	5	6	5	5
Scallop Boat/Dragger	20	29	35	32	31	16	-4
Scallop Diver/Hand	6	6	8	12	9	7	1
Scallop Tender				1	1	1	1
Sea Urchin Boat	37	45	22	14	7	3	-34
Sea Urchin Hand	34	45	36	35	26	14	-20
Sea Urchin Tender/Scallop Tender		33	29	30	21	15	15
Sea Urchin/Scallop Tender-Temporary					1	2	2
Seaweed	5	3	16	12	18	15	10
Seaweed Supplemental	1	2		1	1		-1
Total	671	747	768	814	760	763	92

By Generalized Categories

	1993	1994	1995	1996	1997	1998	Change 1993-98
Commercial Fishing	100	123	123	138	114	117	17
Commercial Shellfish *	53	67	70	74	84	85	32
Eel/Elver	0	0	0	23	8	24	24
Lobster - Commercial	414	394	427	430	412	431	17
Lobster - Non-Commercial	0	0	0	3	14	21	21
Mussells - Boats/Divers/Hands	1	0	0	2	2	4	3
Marine Worms	0	0	1	2	5	3	3
Mahogany Quahog	0	0	1	5	6	5	5
Scallops - Boats & Divers	26	35	43	45	41	24	-2
Sea Urchins - Boats/Hands/Divers	71	123	87	79	54	32	-39
Scallop/Sea Urchin Tender - Temp	0	0	0	0	1	2	2
Seaweed	6	5	16	13	19	15	9
Total	671	747	768	814	760	763	92

** Shellfish licenses based on Town of Harpswell Data for Commercial Licenses*

FIGURE 1

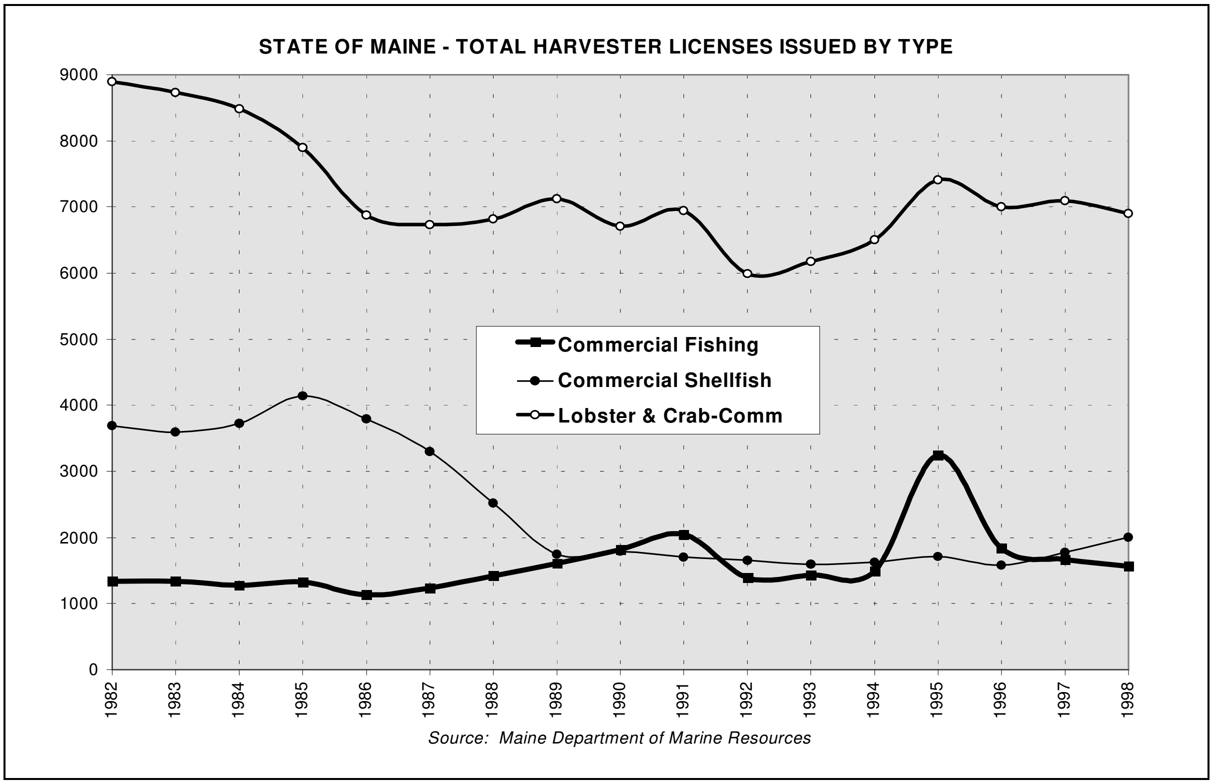


FIGURE 2

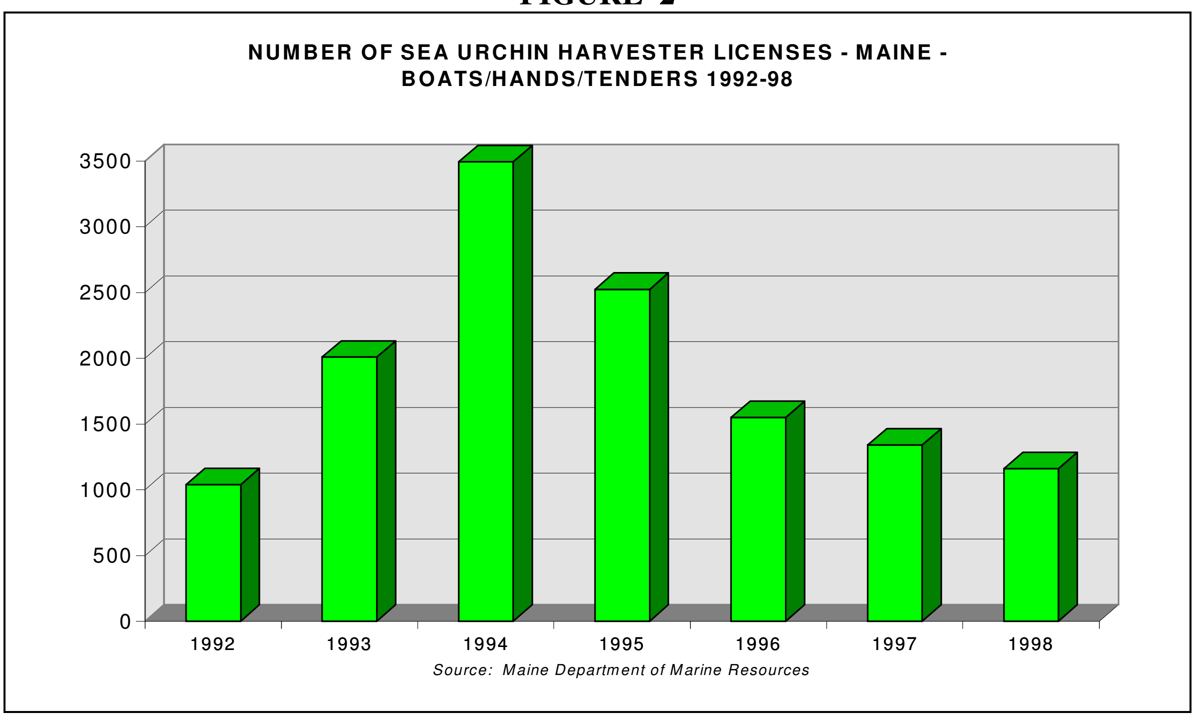


FIGURE 3

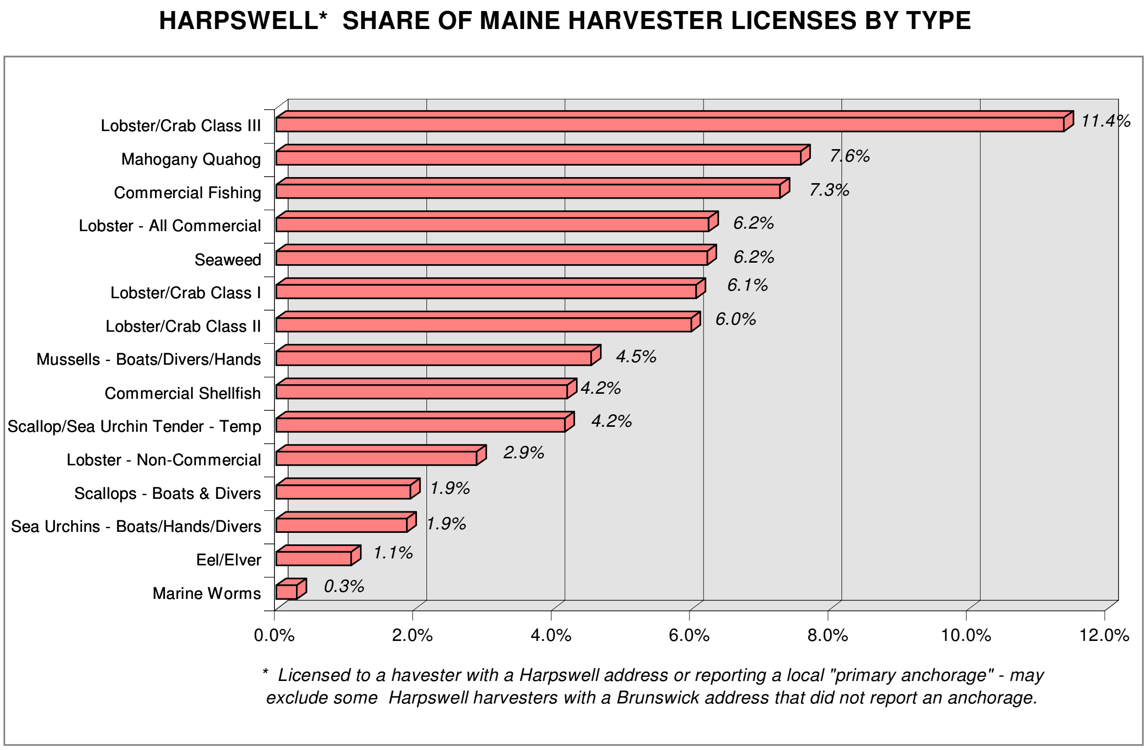


FIGURE 4

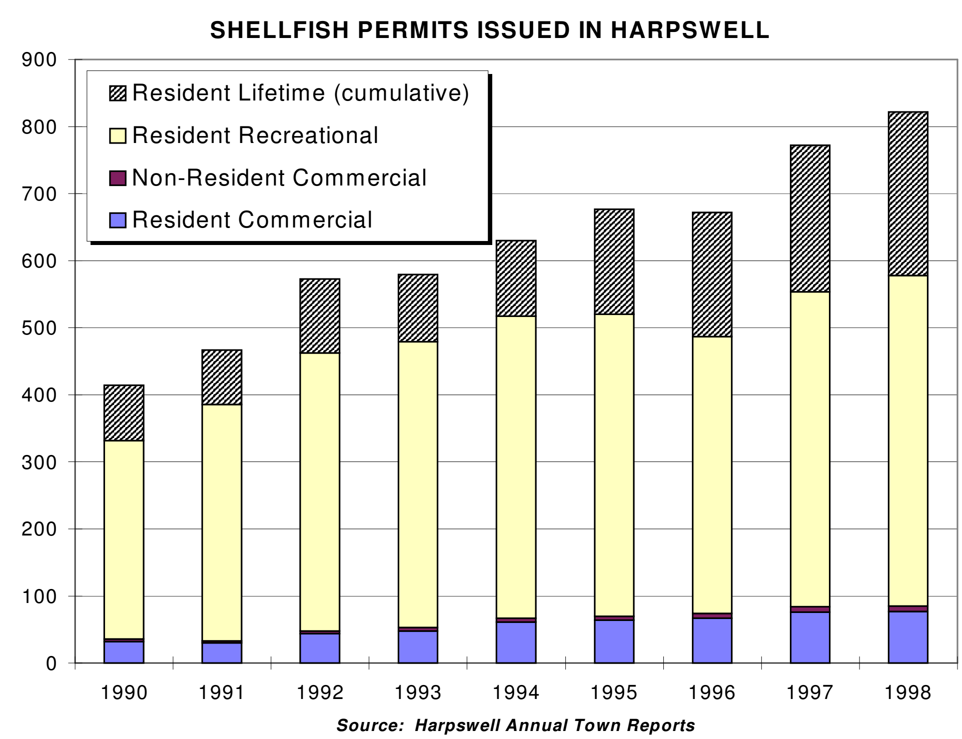
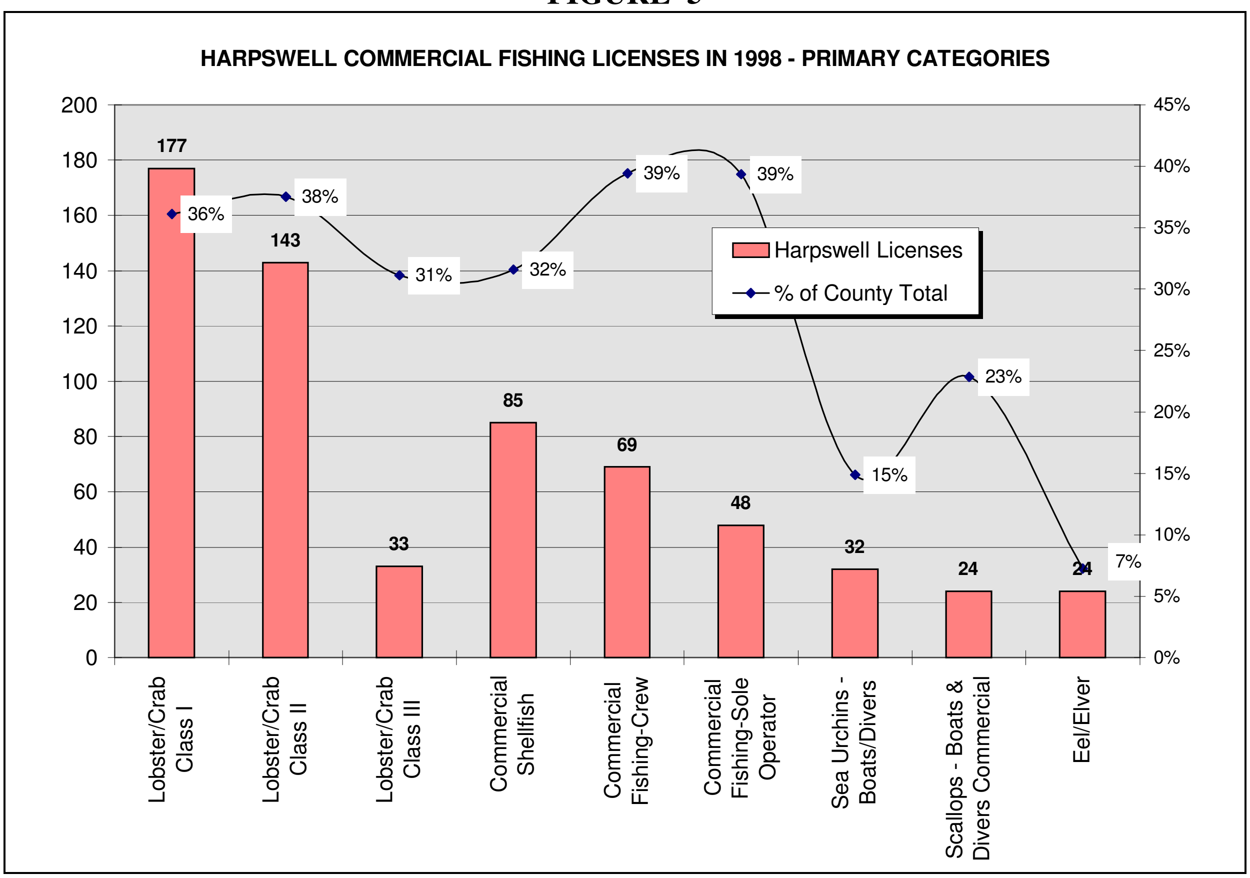


Figure 4 (preceding page) illustrates the growth of commercial and resident shellfish licenses issued by the Town between 1980 and 1998, during which the total number of licenses has doubled. During this period, commercial licenses grew from 32 in 1990 to 85 in 1998 (increase of 165%) . Based on conversations with the Marine Resources Committee, the most productive clamming areas are already open, and a continuation of the growth trend in commercial shellfishing permits is not expected. Even with more improvement in environmental conditions, commercial permits are not expected to exceed 100 in the foreseeable future.

Figure 5 below illustrates Harpswell licenses for major commercial categories and the Town's share of total Cumberland County licenses. Overall, the Town hosts just over 33% of the commercial lobster licenses of the County, 39% of commercial fishing licenses, and 32% of commercial shellfishing licenses. Licenses related to sea urchin harvesting represent 15% of the County total, and the 23% of the scalloping related licenses are associated with Harpswell. While Harpswell is the residence or primary anchorage for 39% of the commercial fishing licensees (category covers groundfishing and shrimping), a recent inventory of port facilities indicates that only about 20% of all non-lobster commercial fleet within the County is based in Harpswell. Less than 15% of the County total of groundfishing and shrimp boats were found in Harpswell in the draft 1999 inventory. The difference appears to represent the gap between total license holders and the number of active vessels remaining in the commercial fishing fleet.

FIGURE 5



B. Federal Management Permits for Commercial Fishing

Effective in 1977, the U. S. Government assumed regulatory jurisdiction over the fisheries in waters 3 to 200 miles offshore. Federal permits are required for vessels fishing within this offshore zone. According to DMR, however, anyone with Maine landings, regardless of area of operation, should possess a license through DMR as well. A data base on federal permits is contained in the Appendix tables. This data base was compiled from a file downloaded from the NOAA Northeast Regional Office, Fishery Information Section, National Marine Fisheries Service, U. S. Department of Commerce. The data was compiled by that office as of May 4, 1999 and reportedly contains data on vessels and related federal permits active as of that date. Selected from this data base were any vessels having an owner listed at a Harpswell address (including the islands and Cundys Harbor), OR reporting a Harpswell location as the "principal port city" of the vessel. There are some vessels listing Boston, Portland, and other locations as the principal port city, but have an owner with a residence or business address in Harpswell.

There are 123 different offshore vessels in this listing, most of which have more than one type of federal permit (see Table 2). Of the total vessels in Harpswell with offshore permits, 29 have permits only for Atlantic tunas. Only a few of the vessel or owner names identified from the federal data base were not found within the DMR license data, and most of these were tuna boats, probably used primarily for sport fishing. A crosstabulation of these vessels by the types of federal permits they hold is found within the tables of the Appendix report.

TABLE 2

Harpswell Vessels with Federal Offshore Permits

Species	Number of Vessels with Permit	% of Vessels Having Permit for Species
Lobster	75	61%
Atlantic Tunas	52	42%
Multispecies Permit (Groundfish)	42	34%
Scallop General	34	28%
Ocean Quahog	20	16%
Squid/Mackeral/Butterfish	20	16%
Surf Clam	11	9%
Summer Flounder	5	4%
Scup	1	1%

**123 Vessels total; most have more than one permit type*

New entry into offshore commercial fisheries is severely limited by federal regulations, which do not currently allow new entrants to the industry. In addition, a 1996 federal buyout program eliminated a number of federally permitted vessels from the offshore fleet. Twenty four percent (24%) of the 79 vessels removed under the program were from Maine (19 total, 8 of which were in the Portland area) which in turn reduced the local fishing effort and related groundfish landings. The NMFS has estimated that the total program (all areas combined) reduced groundfish landed value by about 20%.

C. Number of Licenses, Boats Used and Number of Persons Licensed

After comparing the federal permits with DMR licensing data, it appeared that the State DMR data accounted for nearly all of the commercial fishermen and associated vessels found in the federal data base. Cross-tabulation of the DMR harvester licensing data for 1998 resulted in the estimates below (Table 3), which represents licensee information for Harpswell residents and non-residents who use the town as their primary anchorage. There were a total of 740 commercial licenses held by 522 different individuals residing or operating from Harpswell, with 419 different commercial boats associated with the licenses. The total of 740 includes 85 commercial shellfishing licenses issued by the Town of Harpswell. Presumably these persons also hold shellfish licenses from DMR, but are counted only once in the license data base used here.

TABLE 3
Summary Data - Licensed Harvesters Residing or Operating in Harpswell 1998

	Total	Commercial	Non-Commercial
Harvester Licenses			
Total	**763**	**740**	**23**
Harpswell Address	633	622	11
Other Address	129	118	12
Unduplicated Number of Persons With Licenses			
Total	**545**	**522**	**23**
Harpswell Address	438	427	11
Other Address	107	95	12
Unduplicated Boats Used by Licensees			
Total	**437**	**419**	**18**
Harpswell Address	349	339	10
Other Address	88	80	8

Note: boats listed above include only those specifically listed by the license holder in their application as a boat used in connection with the license, and only a single boat was associated with each license in the data base. If more than one boat is used in connection with a license, there may be more commercial boats engaged in fishing than shown above. A second estimate of commercial fishing boats operating from Harpswell is described below.

D. Count of Commercial Fishing Boats

State Registrations. Maine power boat registration data (which excludes documented vessels) obtained from Maine's Department of Inland Fisheries and Wildlife indicate that in 1998 there **379 resident-owned** power boats having a "commercial fishing" designation within the registration records. Maine registrations do not include documented vessels, nor does this count for the Town include other boats used in local harbors that are owned by persons with a legal residence outside of Harpswell. Documented vessels (generally 5 net tons or larger) are registered with the US Coast Guard, and are not included in the State's commercial boat registration data.

<u>USCG Documented Vessels</u>. The number of documented vessels used in commercial fishing by Harpswell residents and/or persons with a primary anchorage in a Harpswell port is estimated at **135**. The combined figures indicate that total commercial fishing boats and smaller power craft related to commercial fishing may represent over **500** boats (if boats of all sizes are included) operating in Harpswell in connection with commercial fishing. Some of the Maine commercial registrations include very small craft, and others are boats owned by co-ops, boat yards, and other commercial enterprises.

<u>Other Inventories</u>. The size of the commercial fishing fleet (lobster boats and larger commercial fishing boats and draggers) has been estimated for Harpswell in recent and past inventories. A recent count of commercial fishing boats conducted as part of a port inventory study of coastal facilities may be more indicative of the core of the active commercial fishing fleet of principal vessels, estimated to number **236** commercial fishing boats based in Harpswell as of 1999. (See Table 4)

TABLE 4

FISHING BOATS IDENTIFIED IN DRAFT WATERFRONT FACILITY INVENTORY
1999

	Lobster	Shrimp or Groundfishing	Other Fishing	Total
Harpswell	201	15	20	236
Cumberland County Total	656	117	53	826
Harpswell as %	30.6%	12.8%	37.7%	28.6%

Source: Maine Port Facilities Inventory (Draft Report) - SMEDD and EMDC

In 1980, the Town of Harpswell conducted an initial feasibility study for the development of a fish pier. That inventory focused on the number of large draggers and other commercial fishing boats. At the time there were estimated to be about 10 large draggers and 16 other groundfishing boats (total of 26) in Harpswell, and a total of 182 commercial fishing boats (1980 estimate). The 1999 inventory suggests a total inventory of the principal boats at 236, with 15 groundfishing or shrimp boats and 20 other boats (total of 35 non-lobster boats). It is not possible to determine whether the 1980 and 1999 inventories are comparable in their definitions of fishing boats, but both local interviews and 1999 inventory indicate a current core groundfishing fleet of about 14-15 active boats concentrated in Cundys Harbor.

<u>Regional Importance</u>. Harpswell remains of significant importance in commercial fishing in the region, with 31% of the County's lobster boats and 20% of the County's total

groundfishing/shrimp/other fishing boats. Nearly all of the shrimping/groundfishing boats of Cumberland County operate out of either Harpswell or Portland.

In a 1995 report The Right Tack, published by the Maine Coastal Program of MSPO, an inventory of the characteristics of Maine's major working harbors, Harpswell had by far the highest count of commercial fishing boats of all the working ports in the inventory. The inventory did not include documented vessels, as it relied on Maine boat registration data.

E. Estimated Number of Persons Fishing Full and Part Time

Working with the Community Development Committee, estimates were made of the number of persons estimated to be either full time fishermen, or those who rely on income from fishing for a significant portion of their livelihood. A large number of persons appear to hold commercial harvester licenses but fish only occasionally, or are not fishing at all at the present time.

Information on the estimated number of paid crew was available for some vessels with federal fishing permits. By reviewing this data, as well as the number of boats owned by active license holders, and the number of crew implied by Class I, II, and III lobster licenses, a rough estimate was derived of the number of persons having full or part time fishing jobs based in Harpswell. Between **200-250** individual license holders operating from the Town are estimated to be significantly dependent on commercial fishing for full or part time income (not including related crews). Most other license holders are estimated to be involved in fishing only occasionally, or are presently inactive but continuing to renew their permits. Total full and part time employment, including an allowance for crew on active fishing vessel operating from Harpswell, is estimated at between **400-500** persons as of 1998.

A more accurate estimate would require a detailed survey of commercial harvester licenses and vessel owners to assure non-duplication of the count of persons active in commercial fishing, and the number actually deriving most of their income from fishing. Other data produced in the course of this report on licensing information are included under separate cover in an Appendix report. The Appendix contains detailed printouts indicating license holders (1) alphabetically by name of license holder; and (2) grouped by license classification, then by name. This data base could be used as a mailing list for a detailed survey if desired for more in-depth studies in the future.

F. Lobster & Seafood Dealers & Other Fishing-Related Businesses

Marine Resource Dealers. Federal permits issued by the National Marine Fisheries Service are required for dealers receiving landings from federal waters (more than three miles offshore). The types of permits issued to Harpswell dealers include scallops, lobster, surfclam/ocean quahog and Atlantic tunas. A state dealer license is required for any marine resource dealer receiving landings within the State of Maine. The identification of the number of marine resource dealers based on license data may be incomplete due to address problems in the identification of Cundys Harbor locations, often using a Brunswick address and zip code.

The DMR data base for marine resource dealers for years 1992-1998 was also reviewed, as well as active federal dealer permits, for persons and establishments with Harpswell addresses. The DMR dealer list includes those selling wholesale seafood, lobsters, or retail seafood. Licenses are also issued for the out-of-state transportation of lobsters. There were a total of 27 Harpswell dealers found within the state and/or federal lists. In addition, another 4 dealers were identified from yellow page listings. Other waterfront businesses related to fishing were identified based on the 1999 Draft Port Facilities Inventory. Overall, these sources indicated that there are probably between 30-35 dealers in wholesale or retail seafood and lobster in Harpswell.

Related Services and Businesses. The fishing industry has secondary impacts on a number of other businesses that provide services including fuel, ice, boat service and repair, gear and traps, marine electronics and equipment, and marine construction services. A preliminary inventory (See Table 5 below) was compiled from several sources: the dealer lists, a list of employers searched through by the Maine Department of Labor (Internet source), from yellow page listings and review by the Community Development Committee. The "X's" in Table 5 indicate services provided based on the yellow page reference or dealer information available; businesses may offer other services in addition to those shown.

On the basis of this list, we estimate that there are approximately 30-40 additional small businesses that are directly related to commercial fishing in Harpswell (not including those already represented within the count of fishermen). Assuming that each business employs an average of 2 persons, there may be 60-80 additional full or part time jobs in local secondary employment supported by local commercial fishing. In addition to the secondary businesses located within Harpswell, lobstermen report that they have seen improved availability of materials and supplies in the Brunswick area, and on-site delivery of supplies is more common. These changes have reduced the need to travel to Portland, and may indicate that more is being spent locally on related supplies and equipment for lobstering.

TABLE 5

FISHING RELATED BUSINESSES IN HARPSWELL - INITIAL LIST (1)

BUSINESS	Seafood				Boat and Marine Services																Owner/Contact Name
	Wholesale Seafood	Lobsters	Lobster Transport	Retail Seafood	Bait	Boat Repair	Boat Storage	Boat Yard	Boat Transport	Wharf/Pier	Electricity	Fuel	Ice	Marina	Marine Rail	Marine Contractor	Marine Electronics	Diesel Service			
BUSINESSES DEALING IN SEAFOOD																					
Allen's Seafood		X								X	X	X	X								Dain Allen
Bailey Island Lobster Co		X								X											Bryan Arsenault
Barber, Robert			X	X																	
Bibber Lobster	X	X								X	X										Marolyn Bibber
Cook's Lobster Pound	X	X								X	X		X								Curt Parent
Cribstone Restaurant				X						X		X									
Cundy's Harbor Wharf	X	X								X	X	X									Brian Bichrest
Dick's Lobsters	X	X								X	X	X									Richard Merryman
Dolphin Marine Service				X					X	X				X							Malcolm Saxton
Estes Lobster House				X																	Larry Crooker
Glen's Lobsters		X								X	X	X									Hank Bumgardener
Harpswell Shellfish Co	X																				Lorin Davis, Manager
Hawkes' Lobster	X	X		X						X	X	X									Susan Hawkes
Holbrook's Store				X						X	X		X								Jill Coffin
Interstate Lobster	X	X								X											Roy Knight
J Hathaway's Restaurant				X																	Jean Hatahway
Ken's Lobster		X																			Kenneth Toothaker
Knight, Roy	X	X																			Roy Knight
Lobster Ladies/Clemons				X																	Kathy Clemons
Lobster Village at Mackeral Cove	detail n/a									X	X	X	X								
Middlebay Lobster	X	X		X																	
Mill Ledge Seafood	detail n/a									X	X										
Morse Lobster		X		X																	Sheldon Morse
Oakhurst Island Lobster	X	X																			
Perkins Seafood	X																				Joan Perkins
Quahog Lobstermen'sCoop		X															X				Bob Waddle
Ridley Cove Lobster	detail n/a									X											
S & E Shellfish Co	X																				
Toby's Lobster		X																			Tom Butler
Watson's General Store		X																			Robert Watson
Webber & Sons Lobsters, Inc	X	X																			Richard Webber
Whidden Lobster	X	X																			Malcolm Whidden
OTHERS WITH BOAT AND MARINE SERVICES																					
Abner's Wharf										X		X									
B & W Marine						X															Bill Beasley
Caldwell's Marine Electronics																	X				Stuart Caldwell
Coastal Barge & Mooring									X							X					Bill Blood
Finestkind Boat Yard							X	X													Mark Hubbard
Great Island Boat Yard								X			X	X	X	X							
Harbor Propeller Service						X															Elwynne Kenney
Island Boat & Millwork						X															
Mackeral Cove Restaurant										X				X							
Oakhurst Island Boat Shop																					Robert Flynn
Orr's Island Boatworks						X											X	X			Bill Sweetman
Potvin, James F																X					Jim Potvin
Purse Line Bait					X																Jennie Bichrest
Redfish Associates																X					Ben Wallace
Waterman Marine Corp.																X					
Whidden Marine												X			X						

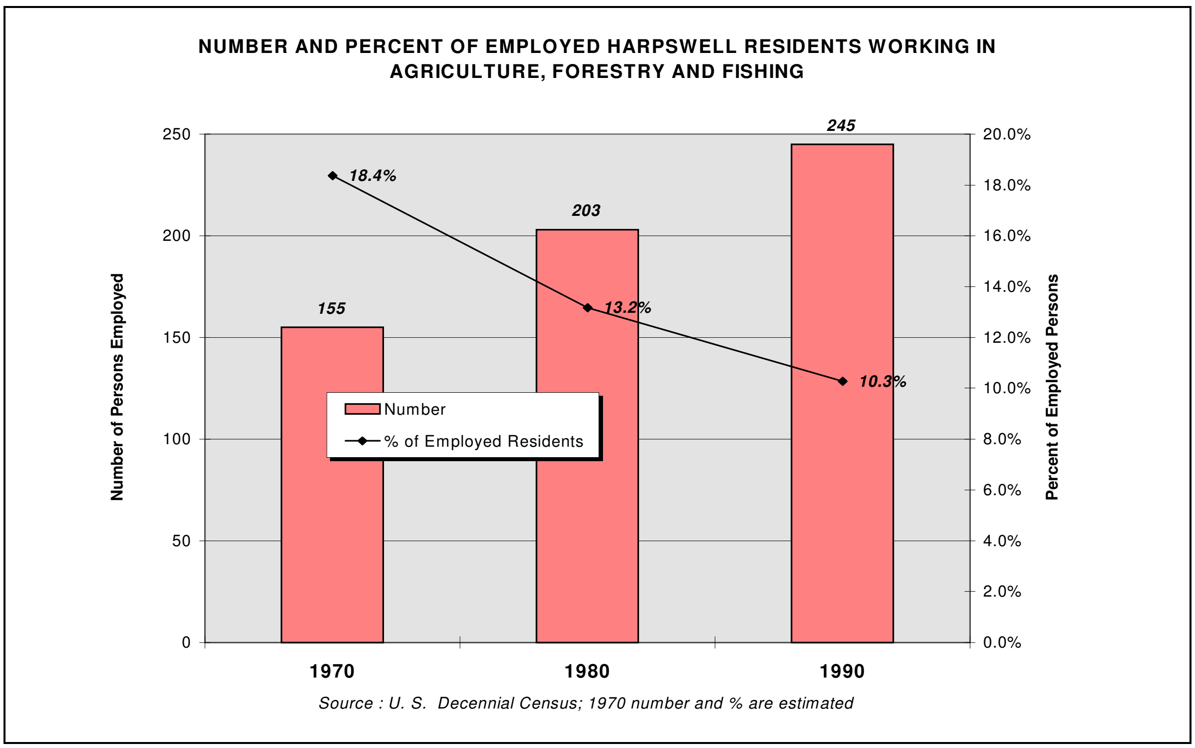
1. The above are based on data from Marine Resource Dealer Licenses, yellow page directory listings, Me. Dept. of Labor Employer Listings, the Maine Port Facilities Inventory and Analysis, 1999 and committee review). This is a draft list based on these sources, and it is unlikely that all related businesses are included. The list should continue to be reviewed and amended as needed.

G. Total Employment Estimates: Fishing and Related Businesses in Harpswell

The significance of jobs in the fishing industry in the community can be measured in two ways: (1) as the *number of residents* who work in fishing industry occupations; and (2) the *number of local jobs* that are found within the fishing industry and related employment.

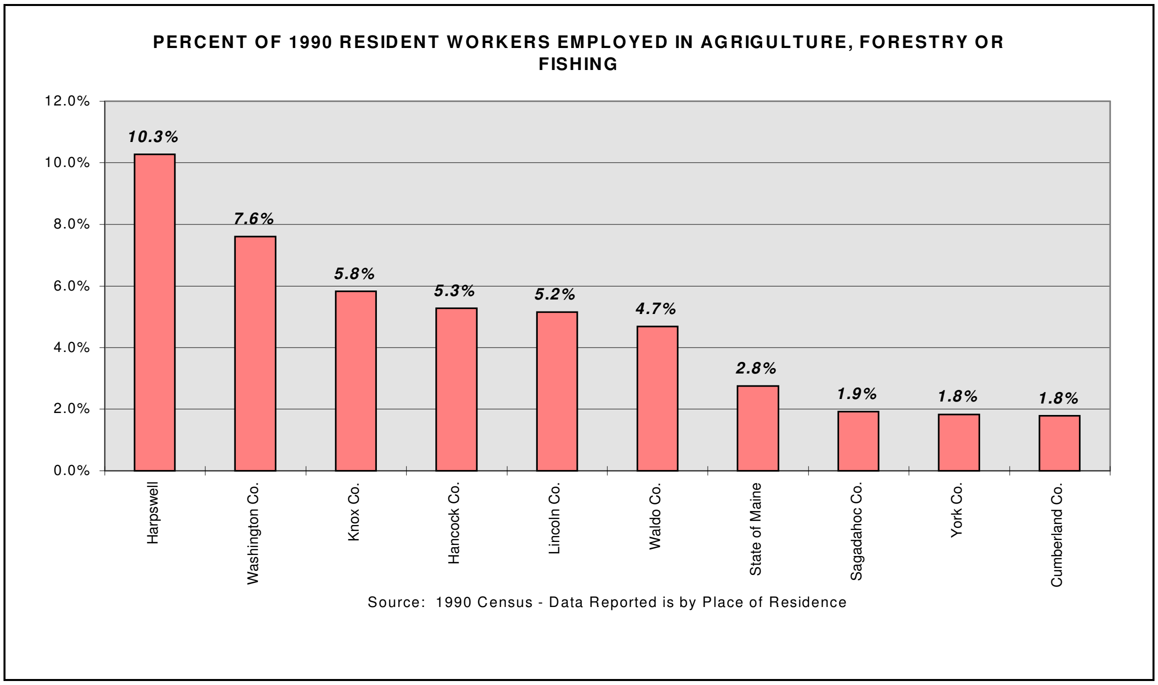
Resident Workers Principally Employed in Fishing. The most reliable local data on persons employed in fishing is the U. S. Decennial Census, in which residents report their employment by industry and occupation. Data are shown here for Harpswell for 1980 and 1990, and have been estimated for 1970 using the available Census data (see Figure 6). The long term changes in the Census data indicate that the number of Harpswell residents working in the fishing industry has probably been growing. In 1990, there were about 2,429 working residents age 16+, of which 10% reported working in "agriculture, forestry or fishing" industries. Of the total working residents of the town, 628 (26%) worked in Harpswell and 1,801 (74%) commuted to workplaces outside of the Town. Because of the Town's population and labor force growth, its location near the Bath-Brunswick and Portland area labor markets, and the predominance of other faster growing industries, the *percentage* of local residents working in the fishing industry has declined and will probably continue to do so.

FIGURE 6



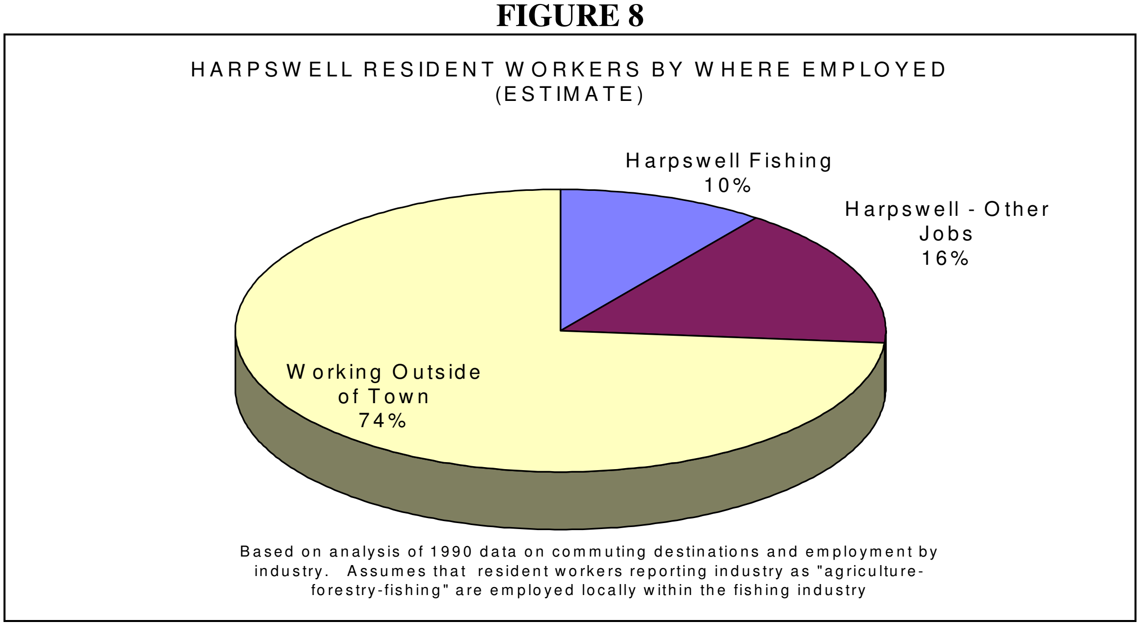
However, even at its 1990 level of 10 % of resident employment, Harpswell has a comparatively high proportion of its residents reporting their industry as "agriculture, forestry and fisheries" compared with the averages for Maine's coastal counties as illustrated in Figure 7 below.

FIGURE 7



Harpswell stands out along the Maine coast as having both a relatively high number and percent of its residents employed in commercial fishing. These proportions probably do not reflect the proportion of part time and seasonal employment in the fishing industry, as those with more than one occupation or industry will be reported in the industry where they derive their principal income. Base on a review of 1990 Census data on the place of work of Harpswell residents, and the industries in which Harpswell residents are employed, the data suggest that not more than 25% of all working residents work within the Town, and that no more than 10% of local resident workers are principally employed within fishing. (See Figure 8).

FIGURE 8



Employment Within Harpswell. Because standard employment and earnings data from federal and state sources exclude the self-employed, there is no up to date count of the total number of persons working in fishing-related jobs in Harpswell. Other than the decennial Census, there is no independent source of total counts of persons by workplace, as federal and state labor data do not report self employment at the municipal level. Thus, government data on employment is not generally representative of fishing-related jobs. The 1990 Census conducts a full count of persons age 16 and over by place of work and place of employment. In 1990, 772 persons reported Harpswell as their place of work. This represents the total number of persons employed by a Harpswell business, governments, schools, working at home, or otherwise self-employed and working in the Town. Of this total, 628 (81%) were also Harpswell residents, indicating that 144 (19%) of local jobs were held by workers who commute into Harpswell. [The commercial fishing licensing data for 1998 seem to parallel this inbound worker ratio: about 18% of the commercial harvesters fishing from Harpswell were non-residents.]

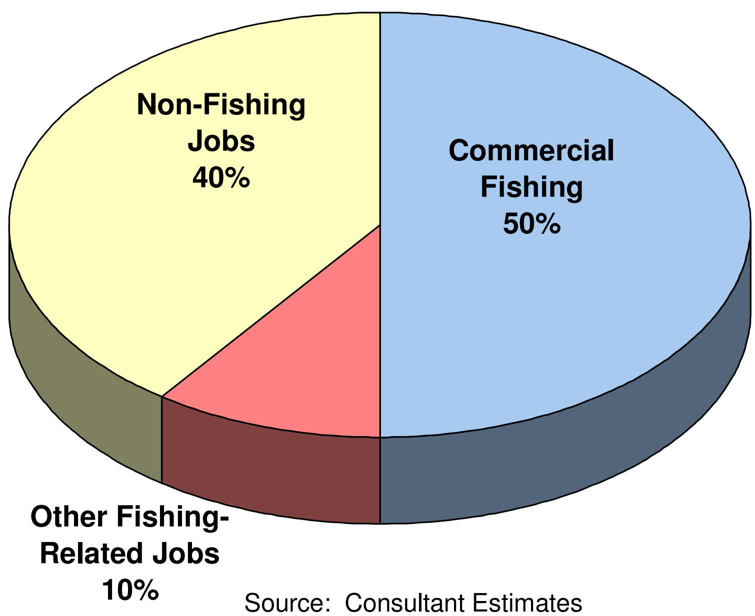
As of 1990, the total covered employment reported by Maine Department of Labor (DOL) for Harpswell was 364 jobs. These jobs include private corporate employment and government employment, but exclude the self employed and some small businesses. Therefore, the number of jobs in covered employment (364) represented less than half of the total number of persons who reported working in Harpswell (772), suggesting that **very small businesses and self-employment may accounted for over 400 other persons working in 1990 but not reported in covered employment figures**. It is probable that many of those so employed in Harpswell are in the fishing industry.

As of the third quarter of 1998, the Maine DOL reports that that covered employment totaled 465 jobs in Harpswell, about 100 more than in 1990 -- an increase of 27%. During the summer of 1998, local covered employment in Harpswell reached a seasonal total of 544. Most of the covered employment in Harpswell is found within the services sector (includes lodging); retail (includes restaurants); and construction industries. Reported covered employment in fishing is virtually negligible, as most working in the industry are self-employed. Even if total self-employment in the Town increased only modestly, it seems likely that the total number of persons who work in Harpswell today is probably over 900, though not all these are full time jobs.

Our earlier estimates suggested that the number working full or part time in fishing and related industries were about 200-250 active fishermen (licensed) plus an equal number of full and part time crew. The total number of persons working in commercial fishing jobs in Harpswell is estimated at between 400 and 500. With another 60-80 estimated to be working in related local industries, including dealer establishments and related marine services, there are probably 460-580 full or part time jobs in fishing related jobs in Harpswell. While there is some overlap between fishermen who are also seafood dealers and who run other businesses, these estimates suggest **that between 50-60% of the total full and part time job base located within Harpswell is directly or indirectly related to commercial fishing.**

FIGURE 9

ESTIMATED DISTRIBUTION OF FULL AND PART TIME JOBS LOCATED IN HARPSWELL - INCLUDING SELF EMPLOYMENT - 1999



Source: Consultant Estimates

<u>Local Job Base vs. Resident Employment</u>. As illustrated in Figure 9 above, when self-employment is taken into account, commercial fishing probably represents the Town's single largest local source of jobs. While commercial fishing is the principal livelihood for only 10% or less of the *residents* of Harpswell who work, commercial fishing represents the core of the local *job base* of the Town, providing 50-60% of local full and part time employment. This concentration of fishing employment is of regional importance as well. The review of licensing data and boat registrations indicates that the concentration of fishermen and commercial boats based in Harpswell is among the highest of all of Maine's working harbors.

III. ECONOMIC IMPACT OF INDUSTRY

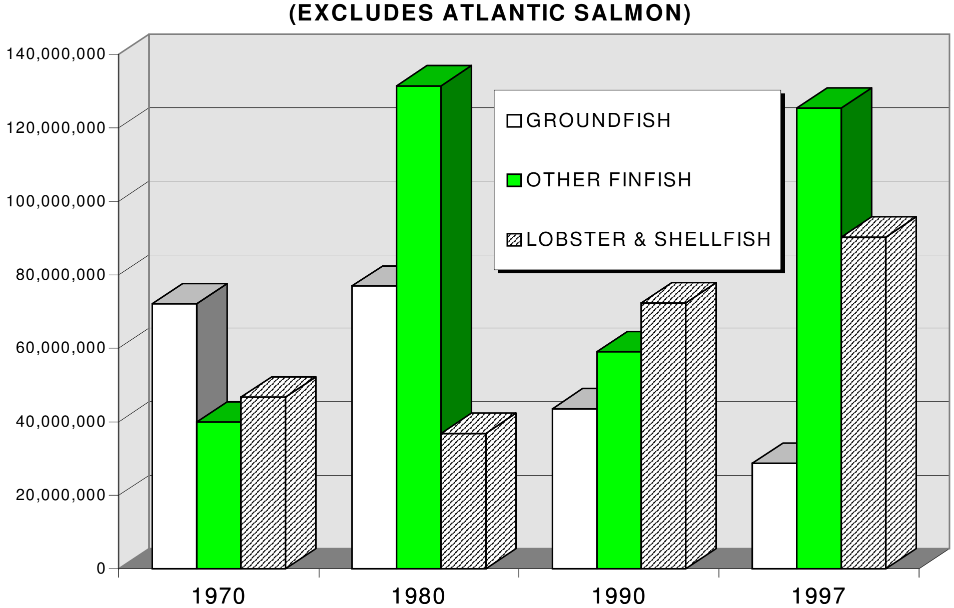
The economic value of the fishing industry in jobs and income is highly dependent upon resource availability that is subject to environmental fluctuations as well as an array of complex regulations that are intended to limit the fishing effort.

A. General Trends in Maine Landings

Figure 10 below provides summary landings data for selected years for the state of Maine. The data series below excludes the volume and value of cultured Atlantic salmon, which has become a significant resource in Maine, but not part of the local commercial fishing industry. The 1970 data shown reflect landings volume that preceded the assumption of federal territorial and management control over the 3 to 200 mile offshore fishery which became effective in 1977 to protect the resource from overfishing by foreign fleets.

FIGURE 10

MAINE LANDINGS IN POUNDS - SELECTED YEARS (EXCLUDES ATLANTIC SALMON)



Source: Interpreted from National Marine Fisheries Service annual reports

Since 1980, groundfish landings have declined substantially, while lobster and shellfish have increased. Other finfish represent a significant share of total pounds landed, but their per pound value is much lower than the groundfish stock.

The proportion of landed value of these three components is shown in Table 6 below. Lobstermen are now experiencing record high catches, while finfishing is has become more oriented toward lower value species as groundfish landings continue to decline.

TABLE 6

VALUE OF LANDINGS AS % OF TOTAL - MAINE (EXCLUDES ATLANTIC SALMON)	1980	1990	1997
GROUNDFISH	21.6%	19.1%	9.9%
OTHER FINFISH	8.8%	4.5%	5.3%
LOBSTER & SHELLFISH	69.5%	76.5%	84.8%

Source: Interpretation of National Marine Fisheries Service Data

Not included in the figures shown above are cultured Atlantic Salmon, which in 1998 represented one of the highest dollar value of total Maine landings, second only to lobster in commercial value.

B. Cumberland County Landings

If the value of cultured Atlantic salmon is excluded, Cumberland County represented (1997) about 26% of the State's tot al commercial landings value. About 2/3 of the non-cultured finfish value in the state is landed in Cumberland County. In Table 7 below, landings are shown separately for those species representing $100,000 or more in landed value in 1998.

TABLE 7

COMMERCIAL FISHERIES LANDINGS 1998 - PRELIMINARY DATA
CUMBERLAND COUNTY

SPECIES	LIVE POUNDS	LANDED POUNDS	VALUE	% OF COUNTY LANDED VALUE
LOBSTER	7,764,518	7,764,518	$21,761,129	44.36%
FLOUNDER, AM. PLAICE	2,462,276	2,462,276	$3,273,925	6.7%
SHRIMP (PANDALID)	2,950,787	2,950,787	$2,872,149	5.9%
POLLOCK	4,020,395	3,557,904	$2,689,038	5.5%
ANGLER	4,910,341	1,514,532	$2,502,024	5.1%
FLOUNDER, WITCH	1,352,173	1,352,173	$2,287,462	4.7%
CLAM, SOFT	2,440,832	498,128	$2,245,226	4.6%
HADDOCK	1,781,220	1,562,481	$2,216,169	4.5%
COD	2,000,921	1,710,108	$2,187,146	4.5%
HAKE, WHITE	2,625,497	1,959,336	$1,933,460	3.9%
SEA URCHINS	1,154,926	1,154,926	$1,483,855	3.0%
HERRING, ATLANTIC	16,686,364	16,686,364	$1,167,581	2.4%
HAGFISH	1,929,874	1,929,874	$582,558	1.2%
TUNA, BLUEFIN	70,071	56,035	$354,597	0.7%
SWORDFISH	166,554	125,252	$289,520	0.6%
CUSK	414,595	366,891	$269,918	0.6%
REDFISH	311,218	311,218	$194,345	0.4%
SCALLOP, SEA	121,530	14,589	$107,366	0.2%
ALL OTHER SPECIES	3,663,768	2,467,582	$643,759	1.3%
COUNTY TOTAL	56,827,860	48,444,974	$49,061,227	100.0%

**Fiinfish weights are reported as "Live Pounds"; shellfish weights are reported as "Landed Pounds" (estimated pounds of meats)*
Source: Maine Department of Marine Resources

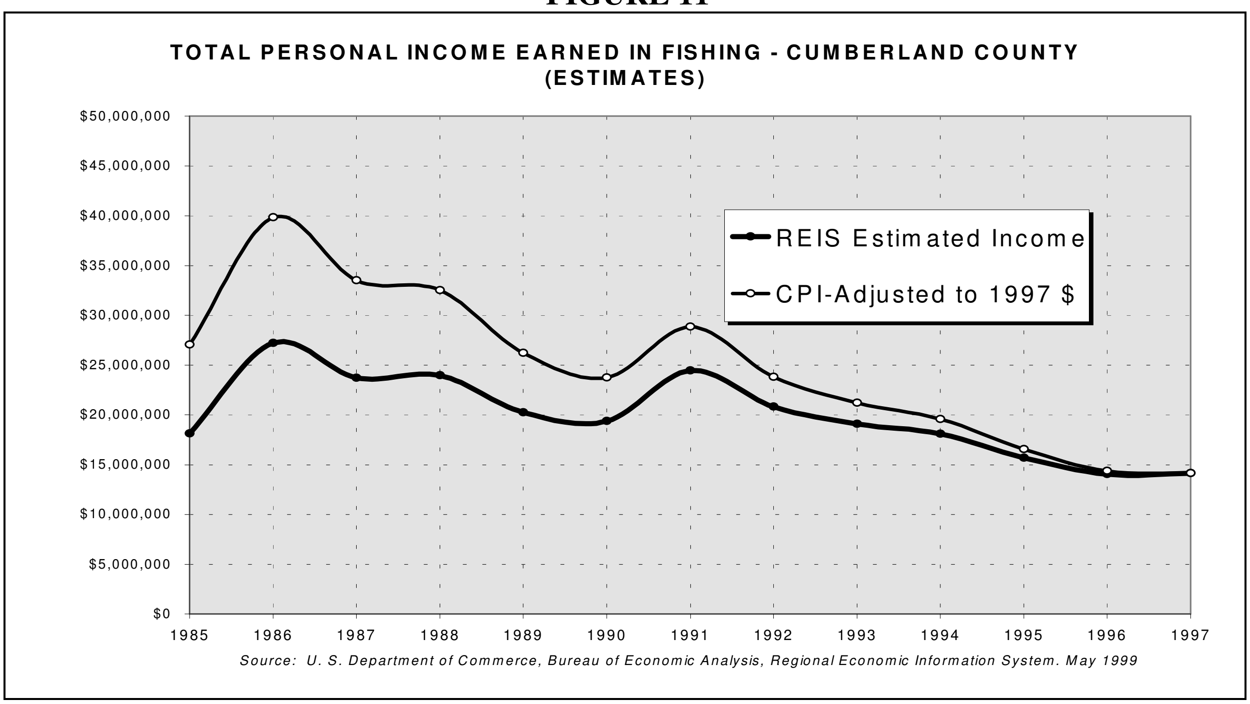
In 1997, Cumberland County also represented (in landed value) 47% of shrimp, 33% of softshell clams, and 19% of lobster landings in Maine.

Lobster remains the major income producing commercial fishery resource of the state of Maine, and for Cumberland County, where it has accounted for 44- 45% of total landed value in the past two years. Total landed value shown for Cumberland County in the preliminary 1998 data is $49 million for the County; total 1997 landings for the County were valued at nearly $58 million.

C. Personal Income from Commercial Fishing - Cumberland County

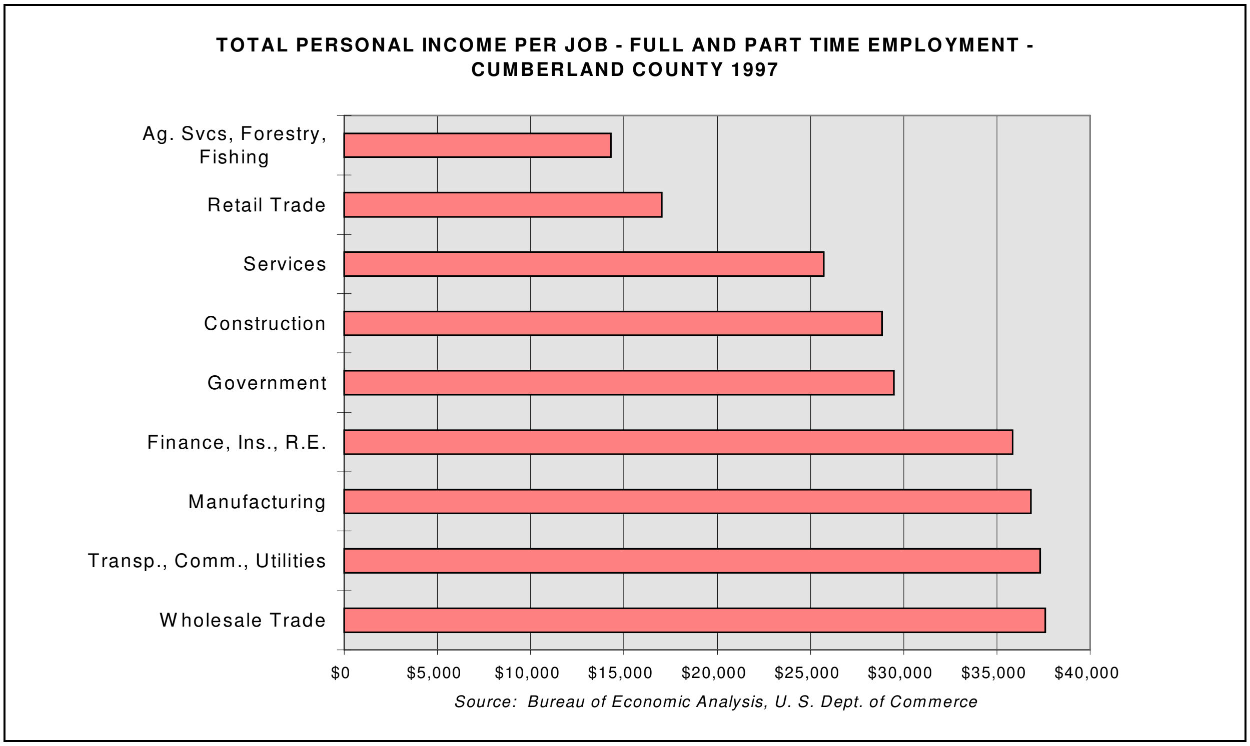
Most available economic data on jobs and payroll within the fishing industry does not provide detailed information on commercial fishing. As it is a very small percent of total jobs and payroll, fishing is generally reported under a broader industrial category such as "agriculture, hunting, forestry and fishing". This category includes agricultural services such as landscaping. Federal and state data (County Business Patterns, ME Department of Labor) on employment are limited both by this categorization problem, and by the fact that the self-employed are not part of the reported information. The U. S. Department of Commerce, Bureau of Economic Analysis estimates total personal income, by industry at the County level for full and part time employment. In its Regional Economic Information System (REIS), the BEA has estimated total personal income for full and part time employment in fishing for Cumberland County at just under $15 million in 1997, representing about a quarter of a percent (0.25%) of the total personal income earned by residents of Cumberland County. Measured in 1997 dollars, total personal income derived from fishing in the most recent year reported (1997) was about half that estimated for 1991. The estimates are based on total personal income from fishing, including that derived from self-employment. (See Figure 11)

FIGURE 11



The data shown in Figure 11 is derived in part from Internal Revenue Service data on personal income tax returns. The REIS data does not provide an estimate of total full and part time jobs at the same level of detail -- the employment data is aggregated within a more generalized category of agriculture, forestry, fishing and agricultural services. Total personal income per job for this generalized category, at just under $15,000 is compared in Figure 12 to other industrial sectors, where it ranks lowest among the industrial groupings compared. As the total income per job is averaged across full and part time employment combined, it does not necessarily represent the average income of a full time job.

FIGURE 12



Information on income derived from IRS tax data (national summaries) show, for sole proprietorships engaged in commercial fishing in the U.S., average reported business receipts of $43,433 per return, and average net income from the business at $15,203 per return. This represents a ratio of gross receipts to net income of 2.85, but net income is affected by business expenses including depreciation of equipment, mortgage interest, and other deductions. Local interviews suggest that a rough rule of thumb for commercial fishermen is that gross receipts probably represent about 2 times personal income after expenses. Gross and personal income derived from fishing was estimated in this report by estimating the total landed value attributable to Harpswell fishermen (estimated gross receipts). Gross receipts probably represent between 2 to 2.5 times the personal net income generated, with the balance going to business expenses and supplies. Using these ratios in association with the value of Cumberland County landings for 1998 would indicate as much as $20-$24 million in personal income generated by those landings.

D. Harpswell Estimates - Value of Catch and Related Income

Based on review of National Marine Fisheries Service landings data for local ports, we estimate that roughly $9-10 million in landed value is handled in the working harbors of Harpswell. The value of local landings is predominantly in lobster and shrimp. In addition, it may be assumed that other species, especially finfish, caught by local fishermen are landed in Portland. An estimate of the total value of the catch attributable to Harpswell was generated by assigning percentages of Cumberland County landed value by species group. The percent of County harvester licenses in Harpswell was also used as a guide for deriving estimates for lobster, shrimp, and clams. The clam revenue estimate was adjusted upward, assuming that one third of actual landed value is not reported in the landed value data. For finfish value, Harpswell's share of Maine's commercial fishing licenses (7.3%) was applied to statewide landed value for finfish in 1997; this is roughly equivalent to 11% of the Cumberland County total for that year.

Based on County landings value by species for 1997 and 1998, the range in gross landed value attributed to Harpswell-based fishermen is estimated to be between $12 and $14 million. Of this total, between $9-$10 million is estimated to be landed within the town of Harpswell.

TABLE 8 - FISHERIES VALUE ATTRIBUTED TO HARPSWELL

	Millions $ Landed Value	% of County Assigned	Basis for Value Assigned
Lobster	7.4 - 8.9	34%	% of County licenses & local landings
Finfish	2.2 - 2.5	11%	% of ME licenses; adj. to County
Shrimp	0.6 - 1.0	22%	% of boats & local landings data
Clams	1.0 - 1.1	32%	% of County licenses + adjustment
All other	0.3 - 0.4	varies	% of County licenses by type
Total	$11.5 - 13.9	24% overall	

Overall, this method indicates that Harpswell-based fishing represents an estimated 24% of overall landed *value* reported for Cumberland County. In 1980, a fish pier feasibility study commissioned by the Town applied an overal average of 18% of County landings *(in pounds)* to estimate the local share of County landings. That study was principally oriented toward total finfish volume by weight.

If commercial fishing in Harpswell represents between $12 - $14 million in gross receipts earned by fishermen, then total personal income is probably between $6 to $7 million. An equivalent amount is probably paid out by fishermen for business related expenses and flows directly to retail, service, transportation, materials and supplies, fuel and other business expenses. A portion of those expenditures flow to the area economy, as well as a share of personal income for household expenses.

Given our earlier estimates from review of licensing data that there are between 400 and 500 commercial fishermen working full or part time in Harpswell, the amount of net personal income per full and part time job probably averages around $15,000, which is roughly equivalent to area and national average personal income for this industrial category. The average income per job is heavily influenced by the number of seasonal and part time workers involved in the industry. A number of fishermen also have non-fishing jobs that also contribute to household income. Data from the lobster license holder survey conducted in Maine indicated that in Zone F (of which Harpswell is a part), 39% of those holding licenses also have a non-fishing job that supplements their income. Income and related data from the lobster license holder survey are summarized for Zone F and the state in Table 9.

TABLE 9

INCOME CHARACTERISTICS OF LOBSTER LICENSE HOLDERS

Results of Lobster Zone Questionnaire Project
Prepared for DMR by University of Maine
(Zone F includes Harpswell)

% Of Income Derived From Lobstering

% of Total Income from Lobstering	**ZONE F**	**STATE**
None	14.3%	7.9%
1-24%	19.0%	13.3%
25-49%	6.1%	7.9%
50-74%	8.2%	12.6%
75-100%	52.4%	58.3%
Have no non-fishing job	60.1%	67.3%
Have a non-fishing job	39.1%	32.7%

Average Traps Fished by Lobstering Income

% of Income from Lobstering	**ZONE F**	**STATE**
None	37	38
1-24%	134	152
25-49%	232	311
50-74%	553	535
75-100%	929	732

% Of Income Derived From Other Fisheries

% of Income Other Fisheries	**ZONE F**	**STATE**
None	67.1%	61.3%
1-24%	24.5%	27.7%
25-49%	3.5%	6.1%
50-74%	2.1%	2.7%
75-100%	2.8%	2.2%

% Of Income Derived From Non-Fishing Job

% of Income Other Fisheries	**ZONE F**	**STATE**
None	54.2%	60.2%
1-24%	14.6%	15.6%
25-49%	3.5%	6.5%
50-74%	7.6%	4.6%
75-100%	20.1%	12.4%

Source: DMR, Lobster Zone Questionnaire Project: Appendix C: Selected Results

E. Economic Impact of Harpswell Commercial Fishing on Region

Economic impact multipliers vary widely by the size of the region under consideration. For example, if the region is the entire state, the economic multiplier is likely to be larger than if the region is a local trade area due to the leakage of direct and indirect expenditure from a region, the state or the US. Some direct expenditures by commercial fishermen are for equipment, supplies, bait and other materials from outside the region including Canada. Detailed economic modeling of the overall economic impact of the fishing industry has yet to be developed. As of this writing, a comprehensive economic model of the industry is being developed by the University of Maine. The projections in this report are intended as order-of-magnitude estimates only.

The Maine State Planning Office economic impact model (Regional Output Simulation Model) was used as rough guide to estimate economic impact of the local industry. As the model relies primarily on number of jobs, total personal income or payroll, and direct expenditures by a target industry in the region, it does not reflect the specific characteristics of commercial fishing. In the estimates below, direct expenditures are assumed to remain in the region. The gross landings value attributable to Harpswell was used to estimate total payroll at 1/2 of gross receipts (landings) with the balance attributed to the direct business expenditures of commercial fishermen. Of those expenditures, it is assumed that 40% is to retailers, 30% to wholesale purchases, 20% to services and 10% to construction. The economic area is assumed to be Cumberland County, and it is assumed that all direct expenditures by commercial fishermen are made within the County. The actual proportion of business-related purchases made locally or within the State or County by fishermen is not known. A survey of expenditures would be needed to establish how much money is spent, and where it flows for equipment, supplies and services.

Using these ratios and assumptions, the model produces an estimate of the primary spending by commercial fishing enterprises (assumed to remain in the region) and an estimate of secondary impacts on jobs and spending by households (allowing for leakage to other areas). Results are shown in Table 10.

TABLE 10
Expenditure Impact Estimates

Gross Receipts Attributed to Harpswell Commercial Fishing:	\$ 12.0 - \$ 14.0 million
Fishing Personal Income @ 50%:	\$ 6.0 - \$ 7.0 million
Direct and Indirect Impacts:	
Direct Business Expenditures Assumed	\$ 6.0 - \$ 7.0 million
Secondary Induced Sales	13.7 - 16.0 million
Total Expenditure/Sales Impact	19.7 - 23.0 million
Secondary Jobs Created (non-fishing)	238 to 280 jobs

Under the above assumptions, local commercial fishing within Harpswell (not including related businesses and services) is estimated to represent personal income of between $6-7 million in fishing. The total of direct and indirect induced sales for the Harpswell-based fishing industry is represent an estimated total sales impact of between $20-$23 million in consumer and business sales which creates an additional 238-280 jobs in other economic sectors.

The expenditure impacts estimated above include those generated by commercial fishing income: direct business spending plus consumer spending impacts as a function of the personal income generated by the industry. Other interindustry linkages to processing, wholesale distribution, seafood retail sales and other related impacts have not been estimated in the above figures. The total economic impact of commercial fishing, in combination with all other fish product related industries, should be considerably higher.

F. Licensing and Fee Revenues from Fishing in Harpswell

The estimated license and fee revenues derived from commercial harvester and dealer licenses associated with commercial fishing in Harpswell (including non residents using Harpswell ports) have been approximated in Table 11 using current DMR and Town license fee schedules and other assumptions. The actual amounts derived from mooring fees and excise tax on commercial fishing boats was not available; it has been estimated above at 25% of the total. Local excise tax collections and mooring registration data were not available from the Town in computerized data files. Current mooring registration fees are $8.00 (resident or non-resident taxpayer); $40.00 (non-resident personal use); and $30.00 (rental use).

TABLE 11
Licensing/Registration Revenues

Marine Resource Licenses - State		
Harvesters	$ 104,000	
Dealers	15,000	
Commercial Boat Registration Fees - State	5,000	
Licensing Revenues - Town		
Harpswell Shellfish Licenses & Fines		20,000
Other town fees		
Assume 25% of Boat/RV Excise Tax & Mooring Fees	15,000	
Total Annual Revenues from Selected Fees/Licenses	**$ 159,000**	
State	124,000	
Town	35,000	

Local commercial fishermen and dealers contribute an estimated $159,000 annually (given current fee schedules) in the form of State and local licenses and registrations.

Trends in Harpswell marine related revenues (includes commercial and recreational) is shown in Table 12 below, along with the total count of moorings, for 1990-98.

**TABLE 12: MARINE-RELATED REVENUES AND COUNT OF MOORINGS
TOWN OF HARPSWELL**

Marine-Related Revenues	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**
Boat and RV Excise Fees	$41,049	$41,992	$40,031	$40,817	$38,616	$41,305	$38,592	$23,248	$40,639
Shellfish Licenses	$5,580	$6,788	$10,346	$13,181	$8,710	$10,116	$10,162	$11,519	$11,915
Ordinance Fines-Shellfish			$3,148	$3,890	$10,000	$6,939	$7,277	$10,265	$6,074
Mooring Fees	$8,050	$12,780	$13,295	$13,675	$14,529	$20,829	$21,304	$23,248	$22,725
Total Selected Revenues	$54,679	$61,560	$66,820	$71,563	$71,855	$79,189	$77,335	$68,280	$81,353
Total Mooring Permits	1,532	1,638	1,707	1,810	1,884	1,873	1,985	2,017	2,001

The above revenues are derived primarily from marine related fees, which in part are derived from commercial fishing. In calendar year 1998, the Town collected a total of over $81,000 in these marine-related revenues. Harpswell expenditures for harbor management and marine resource law enforcement in 1998 (marine wardens and harbor master) totaled approximately $109,000.

IV. IDENTIFICATION OF COMMUNITY DEVELOPMENT ISSUES

In addition to the objective of estimating the economic importance of commercial fishing to the Town of Harpswell, another goal was an initial identification of problems facing the future of the industry locally, especially those issues over which local government has some influence.

A complex array of state and federal regulations controls access to commercial fishing resources that affect all commercial fishermen. Long-term changes in the regulatory environment are discussed in brief below to provide a general description of trends in fisheries regulation. This is followed by a review of expected waterfront trends in Maine based on Maine Coastal Program publications. With these as background, observations and issues are listed from the results of Harpswell interviews and small focus groups. The principal local issues identified in the process that fall within the influence of local government are then summarized.

A. Overview of Regulatory Changes

The following overview of federal management regulations is based on a review of NOAA Technical Memorandum NMFS-NE entitled *Status of the Fisheries Resources Off the Northeastern United States (1998)*. Included in this memorandum are evaluations of species abundance and exploitation; economic trends; and the impacts of the groundfish fishery buyout program. Some of the general trends described in this report are paraphrased below.

The NMFS has been surveying species abundance in the Northeast region for 35 years. In the 1963-74 period, the index of species abundance declined by 70%, reaching a then-historic low. In 1977, federal management control of the offshore fisheries began with the creation of the 3 to 200 mile Exclusive Economic Zone. The purpose was to reduce foreign overfishing, allow for stock recovery, and to expand the domestic fishing fleet. Federal policies and financial assistance then favored the expansion of the groundfishing fleet, which in the Northeast doubled between 1977 and 1982.

Around 1982 it became apparent that, with the fleet buildup, catch quotas were no longer adequate to protect fish stocks, and indirect controls such as gear restrictions and minimum fish size were instituted. During 1987-88, abundance indicators which had peaked in 1977 had dropped to among their lowest ratios historically. In 1986, a multispecies management plan was instituted, and additional species were added to the protected stocks in 1991. Some improvement in abundance was realized in 1989-90 attributed to reproduction, but indices again returned to record low levels in the 1992-1994 period.

In 1994, indirect controls were supplemented by limited entry policies which capped the number of vessels with federal permits, and which introduced limits on the number of days at sea allowed per vessel. Gillnetting also came under new restrictions for the protection of porpoise. In 1996, additional regulations further limiting the number of days at sea were introduced. To partly compensate for the economic hardships imposed, federal financial assistance for retraining, aquaculture startups, and a vessel buyout program were introduced. As a result of the buyout initiatives, 79 vessels were permanently removed from the Northeast fleet, including 19 from Maine, 8 of which were in the Portland area. Estimated program-wide reductions in catch (pounds and value) is estimated at about 20% by NMFS as a result of the removal of vessels in the Northeast region. As of 1998, NMFS reports that the abundance indices showed modest increases in groundfish stock. With declining abundance of traditional groundfish stock, and increased regulation, there has been increased pressure on non-traditional species.

In Maine, the State acted to ban all commercial groundfishing during the months of April-June for a five year period beginning in the 1999 season. New limits on lobstering were issued in Maine to enact a 1,000-trap limit imposed during 1999, with a reduction to a maximum number of traps to 800 required by March of 2000. Lobstermen are particularly critical of the trap limitations because they believe that the overall fishing effort will actually increase, as a large number of smaller operators are permitted to increase their traps up to the maximum. The larger operators will be required to reduce their traps without any "buyout" compensation. This may be particularly significant in Harpswell, located in a zone with a very high average number of traps among those license holders who earn most of their income from lobstering.

Some recovery of groundfish stock is now being observed, and lobster landings have been at record levels in the past few years. Fisheries management policy has been to continue to limit fishing effort to allow adequate reproduction levels so that species collapse and boom/bust cycles in the industry can be partially controlled. Given the status of current regulations, the groundfishing industry will not grow until there is a finding of adequate resource abundance that would permit increased fishing effort or to allow new entry into the fisheries.

<u>B. Expected Waterfront Trends in Maine</u>

The following were among the anticipated waterfront trends confronting Maine harbor management and waterfront property development identified in the Maine Coastal Program's 1995 publication <u>*The Right Tack: Charting Your Harbor's Future*</u> (selected issues are excerpted or paraphrased below):

- More demand for seafood products will lead to more attempts at aquaculture startups and associated fish and seaweed processing, packaging, and shipping.
- Explosive growth in recreational boating will continue to create demand for more boat launching facilities, mooring spaces and boat traffic management.
- Revival of soft-shell clam industry; lobstering will remain relatively stable.
- Expect more stringent marine pollution control measures and need for more marine pump-out stations.
- As Maine tourism increases, there will follow more pressure for marinas, seasonal docking facilities, and services including restaurants, lodging, fuel, and parking. Cruise boat and charter services will be in higher demand.

- Maine's coastal region is ideally suited to, and will continue to attract, research, education and development operations in marine science and biotechnology.

- Coastal real estate, especially non-restricted waterfront properties, will continue to command premium prices, particularly for residential and recreational uses.

C. Local Commercial Fishing: Trends and Issues Identified in Interviews

A combination of several telephone interviews and three small focus groups were used to review local trends and issues in commercial fishing within Harpswell. Representatives of the Marine Resources Committee, the Harbor and Waterfront Committee, local commercial lobstermen and fishermen and other citizens were included in these interviews. One focus group session, set aside for groundfishing, was not well attended and this part of the industry may be underrepresented among the issues identified. As a broad representative survey was not possible within the scope of this study, the list of issues provided here does not necessarily represent fact or consensus. Rather, the items discussed below represent a possible agenda for additional study by the Town with respect to retaining its local commercial fishing industry. The issues and observations below have been organized under six general topic areas; they are listed in no particular order with respect to priority. A few observations based on Harpswell entries in the *Maine Port Facilities Inventory and Analysis* (draft, July 1999) are also included.

1. Industry Characteristics; Changes; Regulation

- Lobsters are currently very abundant. New state trap limits will actually result in more traps in the water as new entrants expand up to the maximum allowed.

- New design lobster traps and equipment efficiency in general are making capital more important than knowledge in entering commercial fishing.

- Disposal of old traps with (plastic coated metal) may eventually become a solid waste disposal issue.

- Bait suppliers are doing well with the increase in lobster volume. With the supply scarce, the bait business has been strong in the last five years and has increased in local availability.

- Acquisition of supplies for lobstering has improved. What used to require a trip to Portland now may be found in Brunswick, or available by on-site truck delivery.

- Equipment efficiency, including better lobster trap design, has increased the capacity of individual vessels.

- Clamming areas have improved with more flats open and gradual progress in elimination of overboard discharge.

- A significant portion of shellfish sales are believed to be direct to restaurants and other cash buyers. There is a proposal in the legislature to require all sales be made to licensed dealers.

- There has been a big decline in the once productive urchin fishery, entry to which is now limited by lottery. Scallops are also in low abundance.

- Collapse of the urchin fishery resulted in a significant economic hardship for some local fishermen.

- Federal management regulations require that the incidental by-catch of regulated species must be discarded, an unnecessary waste of the fisheries resource.

- Not too many local fishermen have left the industry entirely over the last 10 years except those who have retired. Under the current regulatory environment, and the capital required, there is less incentive to get into the business. However, many licenses have been retained by those who do not fish or who fish only occasionally.

- Because most are self employed, fishermen may have very limited or no health insurance; if married they may rely on a working spouse for health insurance coverage.

- The fisheries tend to go through cycles of scarcity and abundance. The older established fishermen are more likely to survive in the industry; recent entrants may be overcapitalized and less able to withstand resource shortages or stricter regulations.

- Future trends in commercial fishing favor an increased share of the catch going to larger boats or consolidated operations and company owned businesses.

- The strength of the industry is its versatility and capacity to change in response to regulations and species availability. Some fishermen may be vulnerable to these changes, especially if overcapitalized with new and expensive equipment and/or new to fishing or lobstering.

- The boat servicing industry has been helped by the increase in recreational boating.

2. *Environmental Changes/Resource Protection*

- The Town has estimated its coastline frontage at 216.8 miles. With this extensive maritime area, Harpswell has one of the longest coastal shore frontages in the State, representing a tremendous resource as well as a management challenge.

- With two full time wardens, the Town has a relatively high level of effort in enforcement for its shellfish ordinance compared to other towns. Given the length of the Harpswell coastline, however, poaching remains a problem.

- One observation is that tapeworms are increasingly found attached to clams; there is speculation as to the relationship of this occurrence to depletion of the groundfish stock and a decline in natural predators.

- Fisheries are vulnerable to ecological change, biological cycles, disease and other natural phenomena causing unexpected economic hardship for fishermen.

- Lobster trap concentration in Harpswell has become very high. There is a lot of bait in the water, and more seals are being observed, some feeding on bait in the trap itself.

- There are about 100 overboard discharge sites remaining in Town. Remediation using state programs allows the Town to eliminate about 3 per year, which may gradually allow the opening of some new areas to clamming. However, most of the potentially productive flats are already open to harvesting.

- Discharge of oil and bilge into the water from commercial fishing boats may not adequately addressed by enforcement (comment from waterfront facilities interviews, 1999 Port Inventory report).

3. *Potential For Use Conflicts*

- Moorings demand has continued to rise, with pleasure boats consuming an increasing portion of total moorings. [Since 1990, the number of moorings has increased from 1,532 to 2,001 in 1998, and increase of 469 (31 %) over an eight year period.]

- Increase in recreational boating and transient boat traffic to Harpswell is causing further crowding of the harbors.

- Some believe there to be a large number of unregistered moorings in Harpswell, and that the problems of harbor traffic and moorings management will continue to intensify as residential use, second homes, and recreational boating increases. Given the number of harbors in the Town and their distance apart, there may be a need for more resources devoted to harbor management and enforcement.

- There has been a big increase in non-commercial boat traffic. A major increase in recreational boats, notably in upper Middle Bay, has been observed.

- Waiting lists for tie-ups at available waterfront facilities in Harpswell is entirely for recreational boating use, evidencing the increased demands from residential and pleasure boating.

- There is a concern that, with the increase in residential development in the Town, that newer residents will begin to lobby for land use regulations or ordinances that are adverse to fishermen storing traps or equipment on their residential lots.

4. Changing Real Estate Values and Taxes

- Unlike their Downeast counterparts, most local fishermen don't live in on-shore properties. Increasingly, fewer fishermen will be able to live in Harpswell, become less able to access the waterfront, and retain only marginal ties to the community at large.

- Increasing real estate values and property taxes make fishermen less able to live in Harpswell, and puts pressure on waterfront property to be sold or converted.

- If owners continue to sell waterfront property at high prices, it will continue to bid up the price of real estate and eventually reduce facilities and access to support commercial fishing.

- Concern that increased real estate values will result in displacement of commercial fishing and less access to the waterfront and coves, especially for shellfishing. In addition, bottom leases could reduce availability of the shellfish resource to local fishermen.

- The fishing infrastructure (existing piers and wharves; waterfront access lots) could be converted and lost to other uses under real estate pressure if action is not taken to preserve waterfront facilities and access for the future.

5. *Waterfront Access and Public Facilities*

- A 1999 Port Inventory infrastructure survey identified 18 privately owned wharves or piers used primarily by the commercial fishing industry in Harpswell. Generally, the conditions ratings for Harpswell facilities were high, with evidence of recent and ongoing maintenance of facilities. Only one facility was identified as having a marine pumpout station.

- Town launch facilities were identified in the 1999 Port Inventory. Of 7 town boat launch or ramp locations identified, only one has any parking, and it is limited to 3-4 spaces.

- Town landings and boat launch facilities exist, and there are other undeveloped publicly owned ROWs. However, neither the developed nor the unimproved sites provide space for parking. Preservation of commercial fishing depends on maintaining adequate water access

- The Town needs to maintain public access to the water. It could purchase or improve ROWs for commercial fishing access points or use the Fuel Depot.

- Fishermen need places for short term loading/unloading of gear and minor repairs.

- Use of the Fuel Depot's existing facility is not practical for most working fishing boats due to the height of the pier. Development of public facilities for commercial fishing using public dollars could be viewed as subsidizing one part of the local fishing industry to the detriment of others who have already invested in developing and maintaining private waterfront facilities.

- The Fuel Depot site has a good potential to support aquaculture uses and marine research.

- There is a need to preserve access to the water and related facilities, and the Town's capacity to support the catch and marketing of fisheries products.

6. *Community Character and Heritage*

- There is some concern that the increasing professional 'bedroom town" orientation of the Town could eventually lead to more property owners to call for restrictions on lobster trap and equipment storage in residential areas. Fishermen generally store traps at home, and work on them in the off-season.

- The Town used to be an agricultural and fishing town. Now it is becoming a professional bedroom community. This trend can eventually price out and displace the commercial fishing industry.

- The Town needs to have a plan to preserve fishing as an industry. It should make findings or resolutions to the effect that commercial fishing is an important priority to the Town, and that its basic supportive infrastructure needs to be preserved. It could consider setting aside future water access locations with some areas reserved exclusively for commercial fishing access.

- The Town needs to ask what would happen to the basic character and heritage of the community if lobstering and commercial fishing were to be lost to other replacement uses on the waterfront. The loss in talent and experience of fishermen would not easily be replaced, nor could the "character of the community" that residents and tourists enjoy be easily reconstructed.

D. Principal Issues Identified

Among the issues discussed by those who were interviewed, there were several topics that were common to all of the interviews and focus groups. These included the following concerns:

1. There is a potential for future losses of commercial fishing uses under real estate pressure for sale or conversion to non-fishing uses;

2. The Town will face increasing pressure to deal with issues of harbor management, moorings control, and enforcement as recreational and transient boating use continues to expand in Harpswell;

3. Ultimately, the continuity of the fishing industry depends on adequate waterfront access. Existing public access points owned by the Town do not provide parking. As real estate values escalate and development pressures increase at the waterfront, the availability of privately owned access points may diminish.

4. The heritage and community character of Harpswell are defined by the presence of a commercial fishing industry. As the Town attracts more growth and investment in waterfront property, the future land uses that are allowed in the shorefront zones could determine how that character changes or is retained.

Most of the above issues were identified in some form in the Town's Comprehensive Plan as updated in 1993. In the Plan, the major goals for marine resources in Harpswell included:

- Promote the retention and growth of marine related activities including but not limited to fishing, shell fishing, boat building, marine supply and service.

- Protect and improve shellfish harvesting areas

- Assure continued access to the water for fishermen and others involved in marine related activities.

These and other related issues appear to be at the center of current concerns that fall within the purview of local government. Our impression is that Harpswell fishermen are probably more comfortable with public actions that provide supportive land use regulations, development and enforcement of harbor management and mooring rules, and future waterfront access, than they are with government-sponsored development of facilities for the fishing industry.